

# **AIRDROP LOAD INSPECTOR REFRESHER COURSE**

## **AERIAL DELIVERY INSPECTION PROCEDURES**

QUARTERMASTER SCHOOL  
OL-A, 345 TRAINING SQUADRON  
FORT LEE, VIRGINIA

**Approved by MAJCOM**  
**AETC, ACC, AFSOC, AMC, USAFE, PACAF, AFRES, ANG**

This handout is for training use only; more current regulations, technical orders, manuals, and messages take precedence. The point of contact for this handout is the Air Force Liaison, DSN 687-4757, FT Lee, Va. Questions about the contents and recommendations for change should be forwarded to the above address or phone number. This handout is used for the Joint Airdrop Load Inspector Refresher Course and will be updated annually. The course requires instruction and practical exercise on training loads, a written test on the information covered, and the inspection of heavy equipment and CDS loads. The grading criteria will be established by the unit as set forth by AFI 13-210.

**The purpose of this lesson is to give basic guidelines for the inspections of heavy equipment platforms, CDS, CRRCs, and associated equipment. Although the 1748 series of forms are available for the inspection of these loads, there are many items inspected which are not on the inspection form. With these techniques and basic procedures, this course will aid the inspection process, ensure a thorough inspection of the load, and decrease the likelihood of malfunctions.**

## **CONTENTS**

<b>TITLE</b>	<b>PAGE</b>
General Airdrop Equipment	3
Common Materials	4
Type V Platform	5
Inspection Sequence	7
Extraction Parachutes and Extraction Lines	8
Extraction Systems	9
Deployment Lines	10
Cargo Parachute and Riser Extensions	11
Releases	13
Suspension Slings	14
General Items	14
Hazardous Cargo	15
Before Loading Information and Inspection	15
After Loading Information and Inspection	16
Sequential Rigging Information and Inspection	17
Container Delivery System	19
Combat Rubber Raiding Craft	24

## **GENERAL AIRDROP EQUIPMENT**

<b>ITEM</b>	<b>COMMON USES</b>	<b>CAPACITY</b>
1" Clevis	G-11 Clevis, Large Clevis, Suspension Clevis, Clustering Clevis	40,000 lbs
3/4" Clevis	G-12 Clevis, Medium Clevis, emergency aft restraint.	20,000 lbs
Platform Clevis	Attaching point between load and platform.	10,000 lbs
Type IV Link	Connecting riser extensions together, attaching bridal loop, deployment lines, extraction parachute, and extraction line for a 15 ft extraction parachute.	40,000 lbs
2 Point Link	Attaching 22 ft extraction parachute to extraction line. (3 3/4 or 5 1/2 inch are authorized)	35,000 lbs
4 Point Link	Primarily used for clustering 28 ft extraction parachutes.	42,000 lbs
Latch Assembly	EFTC component	42,000 lbs
Link Assembly	EFTC component, clustering suspension slings.	42,000 lbs
Tandem Link (Multi-Purpose)	Type V platform equipment used to attach suspension slings to platform.	42,000 lbs
Suspension Link	Type V platform equipment used to attach suspension slings to platform.	42,000 lbs
Extraction Bracket	Attaching point for EFTC	42,000 lbs
Extraction Lug	Used to connect the Extraction Bracket to the Latch Adapter	42,000 lbs

## **COMMON MATERIALS**

<b>MATERIAL</b>	<b>COMMON USE</b>	<b>CAPACITY</b>
Ticket 3, 8/4	Break-cord ties, SATB	15 lbs
Ticket 5, 8/7	Break-cord ties, Safety ties	30 lbs
1/4" Cotton Webbing	Bag closing ties, Safety ties	80 lbs
Type III Nylon Cord	Securing ties, Break-cord ties	550 lbs
1/2" Tubular Nylon	Skid board ties, Lanyards Reefing Line G-11 Parachutes	1,000 lbs
1" Tubular Nylon	Static Line 26' Ring Slot	4,000 lbs
Type XXVI Nylon	Sling material	15,000 lbs
Type X Nylon	Sling material, Restraint strap	8,700 lbs
Type VIII Nylon	Deployment line, Release strap	3,600 lbs
Type IV Braided Nylon	General purpose tiedown	1,000 lbs
15 ft Dacron Lashing	Lashing material	10,000 lbs

## **SLINGS**

USES: Suspension slings, Riser extensions, etc...

<b>TYPE</b>	<b>LENGTHS(ft)</b>	<b>IDENTIFYING MARKS</b>
Type X, 3 loop	3-9-11-12-16-20	OD Green
Type XXVI, 2 loop	3-9-11-12-16-20	Yellow dotted line in center
Type XXVI, 3 loop	3-9-11-12-16-20	Yellow dotted line in center

## **TYPE V PLATFORM**

Only the Type V platform is authorized for USAF unilateral training loads. TO 13C7-52-22 contains specific information on this platform. Allied Forces and foreign military may use other type platforms. TO 13C7-1-5 contains details of these platforms.

### **Characteristics**

- Type V platform is assembled 8, 12, 16, 20, 24, 28, or 32 foot lengths.
- Assembly and disassembly requires minimal tools or equipment.
- Limited maintenance is required.

### **Capabilities**

Extraction system attaches directly to the platform for the maximum airdrop weight on all USAF airdrop aircraft.

Roller pads match aircraft and MHE roller systems.

The side rail clevis withstands the full rated restraint capacity of the Dacron Lashings.

### **Features**

- platform is highly reusable.
- provides a standard platform for all USAF airdrop aircraft.
- High strength tiedown rings and side rail rings. Panel ring 5,000 lbs & side clevis 10,000 lbs.
- platform suspension.

### **Weights**

Platform lengths	Aprox. Weight (lbs)	Min	Max	C-17 Max
8	820	2,520	15,000	15,000
12	1,220	3,780	21,000	25,000
16	1,290	5,040	28,000	28,000
20	1,950	6,300	42,000	42,000
24	2,280	7,560	42,000	52,000
28	2,820	8,820	42,000	60,000
32	3,056	10,080	42,000	60,000

## **Inspection**

Platform inspection will include these basic components:

Main and rear panels

Side rails

Tandem and suspension link assembly

Roller pads

Clevis assembly

### **Main and Rear Panels**

Inspect Panels for bowing, holes, corrosion, and damaged tiedown rings. Bowing is limited to a maximum of one inch along the 103 inch line. Holes are limited six inches in diameter. Tiedown rings will be present and serviceable.

### **Side rails**

Side rails will not be bent, bowed, broken, burred, cracked, or corroded. Only one bolt can be missing from each panel, and no two adjacent bolts may be missing.

### **Tandem and suspension link assembly**

Inspect the links for missing, cracked, burred, stripped, or corroded bolts, and ensure that the links have no cracks or damage. Inspect the tandem links on the forward end of the platform and the emergency aft restraint provisions for proper installation and positioning.

### **Roller pads**

Inspect the roller pads for bowing, corrosion, cracks, twist, or torn edges. Holes in the roller pad are limited two inches in diameter. Only one bolt per panel can be missing; and no two consecutive bolts can be missing.

### **Clevis assembly**

Inspect all of the side rail rings for correct position, corrosion, bends, cracks, and ensure self-locking nuts are tight.

## **INSPECTION SEQUENCE**

The seven critical areas of the inspection sequence follow a logical order. Knowing the various airdrop equipment used on C-141, C-130, C-17, and C-5 aircraft is essential to successful inspections. As with all equipment loaded on aircraft the load data tag must be inspected first to ensure it agrees with the DD Form 1748.

**First,** Extraction parachute, extraction line, and extraction system.

**Second,** Deployment lines lengths, plies, and loops utilized for airdrop.

**Third,** Parachutes: type and capacity, riser extension lengths and stows.

**Fourth,** Releases: types, capabilities, and uses of each.

**Fifth,** Suspension Slings: type, length, loop, and connector link requirements.

**Sixth,** Miscellaneous platform: lashings, emergency aft restraint, and accompanying load.

**Seventh,** Hazardous cargo: This includes inspection of both the primary and accompanying loads for compatibility, proper rigging, and proper documentation.

## **STUDENTS NOTES:**

## **EXTRACTION PARACHUTE & EXTRACTION LINES**

### **C-130 AIRCRAFT**

<b>EXTRACTED LOAD RANGE (POUNDS)</b>	<b>60 ft NYLON EXTRACTION LINE</b>	<b>CARGO EXTRACTION PARACHUTE</b>
2,520 - 8,500	1 LOOP, TYPE XXVI	15 ft
7,000 - 17,500	3 LOOP, TYPE XXVI	22 ft
14,500 - 30,000	3 LOOP, TYPE XXVI	28 ft
25,000 - 42,000	6 LOOP, TYPE XXVI	2 x 28 ft

### **C-141 AIRCRAFT**

<b>EXTRACTED LOAD RANGE (POUNDS)</b>	<b>NYLON EXTRACTION LINE</b>	<b>CARGO EXTRACTION PARACHUTE</b>
2,520 - 8,000	1 LOOP, TYPE XXVI, 160 ft	15 ft
7,000 - 18,750	3 LOOP, TYPE XXVI, 140 ft	22 ft
17,350 - 32,500	3 LOOP, TYPE XXVI, 140 ft	28 ft
30,000 - 42,000	6 LOOP, TYPE XXVI, 120 ft	2 x 28 ft

### **C-5 AIRCRAFT**

<b>EXTRACTED LOAD RANGE (POUNDS)</b>	<b>NYLON EXTRACTION LINE</b>	<b>CARGO EXTRACTION PARACHUTE</b>
2,520 - 10,000	1 LOOP, TYPE XXVI, 160 ft	15 ft
9,500 - 18,750	3 LOOP, TYPE XXVI, 140 ft	22 ft
17,000 - 32,500	3 LOOP, TYPE XXVI, 140 ft	28 ft
30,000 - 42,000	6 LOOP, TYPE XXVI, 140 ft	2 x 28 ft
42,000 - 60,000	7 1/2 INCH ROPE	3 x 28 ft
42,000 - 60,000	7 1/2 INCH ROPE	2 x 35 ft

### **C-17 AIRCRAFT**

<b>EXTRACTED LOAD RANGE (POUNDS)</b>	<b>NYLON EXTRACTION LINE</b>	<b>CARGO EXTRACTION PARACHUTE</b>
2,520 - 8,500	1 LOOP, TYPE XXVI, 160 ft	15 ft
8,000 - 17,500	3 LOOP, TYPE XXVI, 140 ft	22 ft
17,000 - 30,000	3 LOOP, TYPE XXVI, 140 ft	28 ft
27,500 - 42,000	6 LOOP, TYPE XXVI, 140 ft	2 x 28 ft
42,000 - 60,000	7 1/2 INCH ROPE	3 x 28 ft/2 x 35 ft

### **NOTES**

1. All extraction lines must be packed in a sling/extraction line panel/bag.

2. When extraction weight falls into the load range of two parachutes, the larger cargo extraction parachute should be used.

3. All extraction lines must be continuous, except for the C-5, which requires longer extraction lines depending on the fuselage station of the load.

\* The C-5 extraction line length is dependent on the load position in the aircraft. Extraction lines may be extended to account for the different locations. When extending extraction lines, the shorter line must be positioned on the aft end.

## **EXTRACTION SYSTEMS**

**The Extraction Force Transfer Coupling System (EFTC) is the primary extraction system of the US Armed Forces. The EFTC is approved for platform extracted and item extracted use. The preferred method for the Type V platform is platform extracted. Allied Forces, other branches of our armed services, and war reserves have the Static Line Connector Strap Extraction System and the Platform Extraction Force Transfer Coupling System. TO 13C7-1-5 contains descriptions of these systems.**

### **EFTC**

**Extraction Brackets** - must be inspected for proper installation, mounting bolts inserted from the bottom to the top, and use of self-locking nuts. Inspect the bracket for cracks near the lug; some brackets were found to be defective with cracks along the bracket near the lug. Brackets will not be used until inspected and found free of defects. (Ref. MSG 132032 Mar 91)

**Extraction Lugs** - If the Lug Assembly has been modified, the aluminum spacers are not required. If the lug has not been modified, ensure that the spacers are correctly installed. The forward spacers are positioned on top of the adapter latch assembly; the aft ones go on the bottom. Some of the Extraction Lugs were found to be defective. These must be modified with a 1/2 inch steel strip along the lower surface of the lug. This prevents the lug from falling below horizontal and contacting the aircraft floor.

**EFTC Cable Assembly** - Verify cable length required for the size platform being airdropped; Check retaining pin and the cotter pin for correct installation. The factory set bolt on the outside housing of the latch assembly will not be adjusted. Unauthorized adjustment is likely to change the dot and arrow alignment, preclude the Link Assembly from releasing, or cause premature release of the Latch. Inspect the Cable protective cable for cuts, frays, or other damage which could prevent the inner cable from functioning. If the proper length of cable is not available, the next longer length is authorized.

**EFTC Actuator** arm must clear the platform indent by a minimum of 1/4 inch. If the actuator arm contacts side rail bolts during rotation, replace hex head bolts with round head bolts. Ensure latch assembly is clean, serviceable, free of rust, corrosion, and that each latch pin is staked in four positions. Rotate the Link Assembly to ensure that the Cam Bolt has not been overly tightened.

Ensure that the cable is attached to the Latch, the retaining pin and cotter pin installed, and that the dot and arrow are aligned. When a five or six loop extraction line is utilized, a two point link is required to allow enough room for all of the plies to fit around the spacer on the link assembly.

## **PEFTC**

The PEFTC is not being utilized by the US Armed Forces.

## **SLCS**

The Static Line Connector Strap system is not authorized on Unilateral Training Loads. It is only authorized on specific airdrop items and will not normally be used. SLCS will only be used with 15 ft and 22 ft extraction parachutes. Ensure that a 120 inch connector strap is utilized with 22 ft extraction parachutes.

## **DEPLOYMENT LINES**

TYPE	LENGTHS(ft)	IDENTIFYING MARKS
Type X, 3 loop	9-11-16	OD Green
Type XXVI, 2 loop	9-11-16	Yellow dotted line in center

The correct size and length of deployment line will be given in each specific rigging manual ,but these are the most common sizes.

## **CARGO PARACHUTES AND RISER EXTENSIONS**

<b>PARACHUTES</b>	<b><u>SUSPENDED</u> MINIMUM POUNDS</b>	<b><u>WEIGHT</u> MAXIMUM POUNDS</b>	<b><u>RISER</u> LENGTH FEET</b>	<b><u>EXTENSIONS</u> NUMBER STOWS</b>
<b><u>G-11B</u></b>				
1	2,270	5,000	0	0
2	5,001	10,000	20	2
3*	10,001	15,000	40	5
4	15,001	20,000	60	8
<b><u>G-11C</u></b>				
5	20,001	25,000	80	11
6	25,001	30,000	120	16
7	30,001	35,000	120	16
8	33,541	42,000	120	16
<b><u>G-12 E</u></b>				
2**	2,270	3,500	20	3
3	2,145	3,500	20	3

\* M-1 Release will only be used up to 3 G-11B parachutes.

\*\* G-12 E cargo parachutes used on USAF training loads only.

### **CARGO PARACHUTE NOTES**

1. Suspended weight is the total rigged weight less the weight of the cargo parachutes and their riser extensions.
2. The minimum rigged weight for heavy equipment loads dropped from a C-130 or C-141 aircraft is 2,520 pounds.

Parachute	Cutters/ Time	Center line (ft)	Reefing line (ft)
G-11B	4 x M-21/ 2 sec	95/100	four x 16 1/2
G-11C	2 x M-21/ 2 sec	100	two x 10

\*G-11B requires four lengths of 1/2 inch tubular

\*\*G-11C requires 2 lengths of 1/2 inch tubular used to connect the reefing lines together, each of the reefing lines are reusable and made of coreless braided nylon.

## **RISER EXTENSION NOTES:**

1. All G-12 cargo parachute clusters use 20 ft riser extensions.
2. All parachutes on a load must have riser extension made of the same material. Each must be the same type of material (all Type X or Type XXVI). 120 ft riser extensions must be continuous length Type X or Type XXVI.
3. Riser extension stowage ties on G-12s are one turn 1/4 inch cotton webbing; G-11B/C utilize one turn double 1/4 inch cotton webbing stowage ties.
4. Riser extensions will only be connected together with Type IV connector links and covers.

## **PARACHUTE RESTRAINT**

# Parachutes	Type Parachute	Material
Two	G-12E	Type 8 Nylon
Single	G-11B	Type III Nylon
Two to Five	G-11B/C	Type 8 Nylon
Six to Eight	G-11C	Type X Nylon

All parachute restraint will be rigged in accordance with the specific rigging manual for the load being airdropped.

## **PARACHUTE RELEASE STRAP**

ITEM	COMMON USES
V-Knife	Used to cut single or double parachute restraint.
Guillotine Knife	Used to cut single or double parachute restraint.
Multi-cut	Cut double or triple parachute restraint straps. Always use in pairs.

All safety ties for parachute release straps are one turn single 1/4 inch cotton webbing .

## **RELEASES**

There are four types of releases used on the airdrop loads: the M-1, M-2, 5000 lb, and the Hydraulic Release.

1. The **M-1** has a capacity of 200-15,000 lbs and up to four parachutes. The M-1 timer will be checked for the required 12 to 16 second range prior to use. Although the release can hold up to four parachutes, it only has the capability of three G-11B because of the higher weight capability.
2. The **M-2** has a capacity of 6,000-40,000 lbs suspended weight and three to eight parachutes. The M-2 utilizes the same timer limitations as the M-1.
3. The **5000 lb** release is primarily used for the Combat Rubber Raiding Craft when an M-1 is not needed or a Hydraulic release is not available. It has two weight ranges, 1300-2200 lbs and 2201-5000 lbs. WARNING: Do not utilize the 5000 lb release with the G-11B/C parachute. Do not remove the safety pin until just prior to upload on the Before Load Inspection. Inspect the 5000 lb release IAW TO 13C7-1-5.
4. The **Hydraulic Release** is relatively new, has a capacity of 200-2,500 lbs, requires a sustained pull for thirty seconds for it to release, can be used indefinitely, and has no user maintenance parts. The release must be inspected by the manufacturer five years after date of manufacture. The Hydraulic Release is only authorized on the Combat Rubber Raiding Craft (Fig 2). This release was designed to replace the 5000 lb release. The Hydraulic Release has two pieces, main body (A) which is attached to parachute riser, and the release fitting shackle (B) which is attached to the load. When a load is applied on the piston rod (C), it causes the piston head (D) and load spring (E), to move downward. This forces hydraulic fluid, located in the lower chamber (F), to flow through the orifices in the piston head to an upper chamber (G). The size of the orifices and the viscosity of the fluid limits the flow so that the fitting shackle will only release after a 30 second period. When the load is relieved due to canopy collapse, the release spring (K) forces the jaws apart and the release shackle drops away. User assumes liability for use.

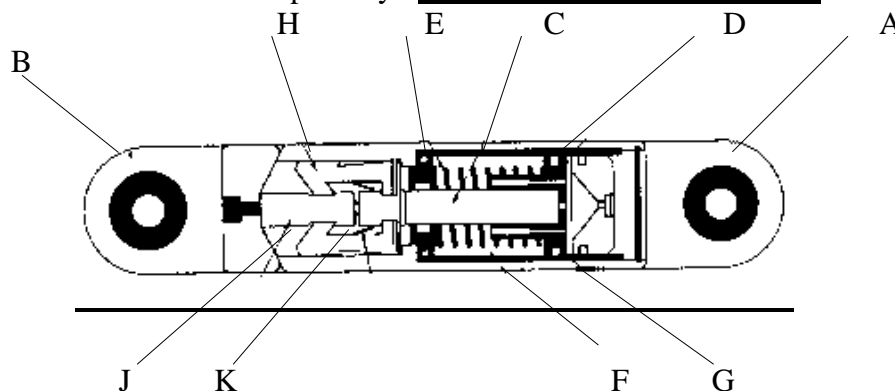


Fig 1

### **HYDRAULIC RELEASE**

## **SUSPENSION SLINGS**

TYPE	LENGTHS(ft)	IDENTIFYING MARKS
Type X, 3 loop	3-9-11-12-16-20	OD Green
Type XXVI, 2 loop	3-9-11-12-16-20	Yellow dotted line in center
Type XXVI, 3 loop	3-9-11-12-16-20	Yellow dotted line in center

The specific rigging manual provides the specific type and length of suspension slings and the method used to bolt them to the platform or drop item. When suspension slings are joined, a Type IV connector link or a two point link must be used. After the suspension slings are attached, a safety tie is installed on the slings to preclude them from becoming entangled on the load. This tie is called the deadman tie and is installed six to eight inches above the top of the load unless changed by the specific rigging manual. When inspecting the suspension slings, the aft suspension sling will appear to have a half twist towards the parachute. The twist is removed as the suspension slings elongate.

## **GENERAL ITEMS**

This section will include any airdrop items not previously covered. Although this is not all inclusive, it is the responsibility of the AF Joint Airdrop Inspector to inspect the load for any item which may appear abnormal, and ensure that the load is rigged in accordance with the specific rigging manual.

## **LASHINGS**

Using the specific rigging TO to inspect the lashings on equipment. Insure the handles on the load binders close up toward the load. Ensure any excess lashing is tied off with 1/4 inch cotton webbing or two inch masking tape around both the lashing and handle.

## **ACCOMPANYING LOAD**

When inspecting accompanying loads, insure that the primary load will not damage it, and that it is protected from damage from the release or couplers falling on it. When inspecting the accompanying load, one inch clearance must be provided from any portion of the primary load which could contact the accompanying load after the honey comb has been crushed.

## **EMERGENCY AFT RESTRAINT**

Emergency restraint requirements are different for each extraction parachute and may vary from air frame to air frame. It is the AF Joint Airdrop Inspector's responsibility to inspect the platform for adequate Emergency Aft Restraint provisions on the airdrop platform.

## **HAZARDOUS CARGO**

When hazardous cargo is airdropped, special requirements are necessary to ensure that the load is safe to airlift and that hazardous materials or equipment will not damage the aircraft or endanger personnel. Inspect the load data tag, DD Form 1748, and the Shippers Declaration Of Hazardous Goods Documentation Form insuring that all information is correct. If any discrepancies are found, write the item number and the discrepancy found in the Remarks Block of the DD Form 1748, continue with the inspection, and notify the Transported Force Inspector. Contingency and airdrop requirements for air shipment except that hazardous cargo must be capable of withstanding the forces applied during an airdrop. Vehicles rigged for airdrop must not have more than a 3/4 tank of fuel. If the fuel gauge is inoperable or a visual conformation can not be ensured, use shipment documentation to verify quantity. Some airdrop items require hazardous materials to be airdropped as an accompanying load. These items must be inspected and certified for airlift and airdrop as required. Ammunition offered for airdrop must be authorized and rigged IAW TO 13C7-18-41. A minimum of two layers of honeycomb are used.

## **BEFORE LOADING INSPECTION**

Fill out the DD Form 1748 and ensure that the load data tag and the information on header block of the DD Form 1748 correspond. The shop final inspection initiates the form. The inspector's responsibility is to ensure the form is accurately filled out and the load has been inspected by the Transported Force Inspector. Utilizing the 1748, begin your inspection. If any discrepancies are found, write the item number on the form in the Remarks Block, continue with the inspection, and notify the Transported Force Inspector that discrepancies must be corrected prior to the load inspection being signed off.

## **STUDENTS NOTES:**

## **AFTER LOADING RIGGING INFORMATION and INSPECTION**

1. The bag closing ties for the 15 ft extraction parachute are one turn double, 8/7 cotton, thread/ticket #5.
2. Bag closing ties for the 22 and 28 ft extraction parachute are one turn single, 1/4" cotton webbing.
3. A 15/22 ft extraction parachute uses one turn single, 1/4" cotton webbing to secure the adapter web and the type IV or Two point link to the extraction parachute deployment bag closing loops. Pass the 1/4" cotton webbing through the connector link, top and bottom bag closing loops on the grommet side of the deployment bag, and secure with a surgeons knot and locking knot.
4. A 28 ft extraction parachute uses one turn double, 1/4" cotton webbing, routing is same as #3.
5. Multiple 28 ft extraction parachutes use a 4 point link to cluster the extraction parachutes. Ensure the lower extraction parachute has been tied open. The pendulum line and the safety loop will be secured together and that the V rings will be taped down. Secure the two parachutes together with one turn single Type III nylon at all four corners. Secure the 4 point link to the upper extraction parachute with one turn single Type III nylon through the upper bag closing loops. The C-17 uses a tie of one turn single, 1/2" tubular nylon.
6. The EFTC is the only extraction system authorized to be extracted from a C-5 or C-17 aircraft, and is the only extraction system authorized for use with the 28 ft extraction parachute.

## **STUDENTS NOTES:**

## **SEQUENTIAL RIGGING INFORMATION and INSPECTION**

### **1. PENDULUM CORD TIE and SAFETY LOOP MUST BE TIED OPEN**

#### **b. Clustered 28 ft extraction parachutes.**

- (1). 1 turn single, Type III nylon cord.

### **2. EXTRACTION PARACHUTE BREAKTIE:**

Attach breaktie at or near the center of the load ( Item 1)

#### **a. Same for all single extraction parachutes**

- (1). one turn triple, 1/4 cotton webbing.

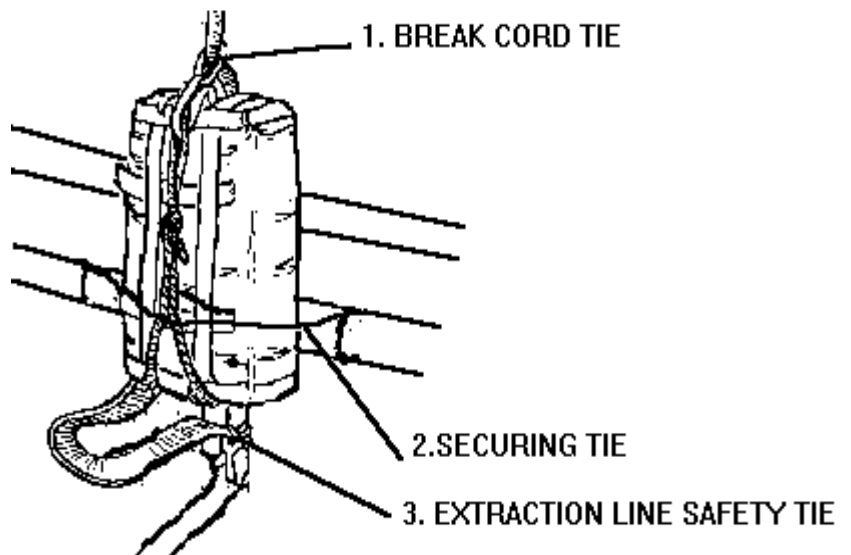
#### **b. Clustered 28 ft extraction parachutes.**

- (1). one turn single, Type III nylon cord.

### **3. EXTRACTION PARACHUTE SECURING TIES FOR C-130**

#### **a. 15, 22, 28 ft extraction parachute.**

(1). 1 turn single, 1/4 inch cotton webbing will be secured to one side of the load with three half hitches and routed through the securing tabs and secured to the other side of the load pulled tight and secured with three half hitches.



### **4. EXTRACTION LINE SAFETY TIE:(3)**

#### **a. Same for all single extraction parachutes.**

- (1). 1 turn double, 1/4" cotton webbing.

### **5. CONNECTOR LINK SAFETY TIE**

#### **a. Same for 15 and 22 ft extraction parachutes**

- (1). 1 turn single, 1/4" cotton webbing

#### **b. Single 28 ft extraction parachute**

- (1). 1 turn double, 1/4" cotton webbing

#### **c. Clustered 28 ft extraction parachutes.**

- (1). 1 Turn single Type III nylon cord routed through the 4-point link.

## EXTRCTION SECURING PROCEDURES FOR C-141,C-5 AND C-17

### 3. EXTRACTION PARACHUTE SECURING TIES

a. 15 ft extraction parachute.

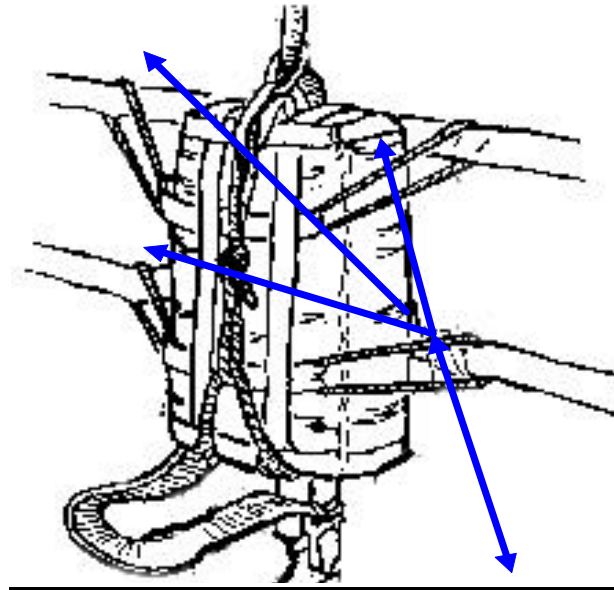
(1). 1 turn double, thread 8/7 ticket #5.

b. 22 and 28 ft extraction parachutes.

(1). 1 turn single, 1/4" cotton webbing.

c. Clustered 28 ft extraction  
parachutes.

(1). 1 turn double, 1/4" cotton  
webbing



STABILIZATION/SECURING TIES

### **STUDENTS NOTES:**

## **CONTAINER DELIVERY SYSTEM** **BEFORE LOADING INSPECTION**

### Inspection Sequence for Container Loads.

(1) Load data card. Inspect the information on the load data card for total rigged weight and height including parachutes, width, overall length, and if the load is rigged for breakaway or non-breakaway. All information must be written with a waterproof marker or ink which will not fade or run if it should get wet. This information is required for inspection and finding the causes for malfunctions. Load weight will be no less than 501 lbs or exceed 2328 lbs. Height will not exceed 83 inches for a C-130 or C-141 or 100 inches for a C-17 or as directed in the specific rigging manual. Width will not exceed the width of the skid board. Length may be exceeded as long as the load remains within the confines of the container and it can be restrained satisfactorily. When hazardous cargo is airdropped, special requirements are necessary to ensure the load is safe to airlift and the hazardous equipment or materials will not damage the aircraft or pose a threat to personnel. Inspect DD Form 1748-4 and the Shippers Declaration of Dangerous Goods Documentation Form insuring that all information correspond on all forms. If any discrepancies are found, write the item number and the discrepancy found in the Remarks Block of DD Form 1748-4, continue with the inspection, and notify the Transported Force Inspector. The requirements for airshipment during contingency and airdrop are the same except the hazardous cargo must be capable of withstanding the forces applied during an airdrop.

#### (2) 68-inch pilot parachute.

(a) Data tag. Inspecting for rigger, inspector, date, and configuration (breakaway or non-breakaway). Check the static line for the correct configuration breakaway (guttled type III nylon cord attached to the static line and G-14 clevis) or non-breakaway (G-14 clevis attached to the static line). Ensure the information on the data tag and the parachutes correspond. If the parachute and the data tag do not correspond, annotate on the DD Form 1748-4 the discrepancy and continue the inspection sequence.

(b) Trace the static line from the G-14 clevis to the pilot parachute deployment bag, ensuring the static line is stowed in retainer bands and not routed through the stow bars. Then check the bag closing tie, making sure it is one turn single, ticket # 5, 8/7 cotton thread. The 111-inch deployment line and bridle assembly are attached to the L-bar connector link with all screws present and tight. The 68 inch pilot parachute will be secured to four locations from each securing tab to a convenient location on the deployment bag with one turn single ticket # 5 cotton thread.

(3) Parachutes. The parachutes must meet minimum and maximum weight capacity requirements IAW FM 10-500-3 or as directed in the specific rigging manual.

(a) Inspect the apex attachment loop on the 26-ft ring slot to ensure that it is attached to the static line with one turn double, type I, 1/4-inch cotton webbing for non-breakaway or an 8 inch loop of 1/2-inch tubular nylon tied from the static line loop to apex attachment loop for breakaway. When a nylon deployment bag is utilized, this is easily inspected. If a cotton deployment bag is utilized it can not be inspected because the apex attachment loop is inside the deployment bag which is rigged during the packing and can't be seen.

(b) The cargo parachute securing ties are one turn single, type I, 1/4-inch cotton webbing on each corner of the G-12 E, tied to a convenient point on the load. The parachute clustering ties will not be routed under any sling assembly or any of the webbing. The 26-ft ring slot will be secured with one turn single, type I, 1/4-inch cotton webbing over the parachute and secured to the A-22 container lateral band.

(c) Check the parachute clevis for attachment of four suspension webs. Untie one of the parachute securing ties and trace the suspension webs down to the point where they attach to the sling assembly. Make sure the suspension webs are attached to the D-rings and taped.

(4) A-22 Container Assembly: Inspect the assembly for serviceability, excess webbing secured with either Type 1, 1/4 inch cotton webbing or masking tape and rigged IAW FM 10-500-3. The container must be positioned correctly on the honeycomb, centered and the sling must not be inverted, the sling will be placed with the scuff pad on top and the sling itself is on the outside of scuff pad. If the cover is utilized it must be secured at each corner with Type III nylon. A cover is required if the equipment being airdropped can not be secured with the A-22 container itself.

(5.) Honeycomb: The honeycomb requirements typically are two layers for low velocity and five layers for high velocity, unless otherwise specified in the specific rigging manual.

(6.) Skid boards: Inspect the skidboard for the correct type (A/C exterior grade) and size authorized for airdrop IAW FM 10-500-3. The A (smooth) side of the skidboard must be on the bottom. Use a 1-inch skid board for C-17 and high-velocity and a 3/4-inch for low-velocity. Inspect the skidboard for cracks, broken edges and any damage that could cause a malfunction or slow the exit due to contact with the Centerline Vertical Restraint system. Skid board ties will be made of 1/2 (or 5/8) inch tubular nylon and must be tight.

The following sizes are authorized:

48 inches by 48 inches, 48 inches by 53 1/2 inches, 48 inches by 72 inches, 48 inches by 96 inches (Double CDS) and 53 1/2 inches by 96 inches (Double CDS)

b. Aircraft Capabilities.

(1) C-130 Aircraft, with a center line vertical restraint (CVR) can hold 8 single on each side of the aircraft for a total of 16 A-22 container using the 48-inch by 48-inch skid board. If 48-inch by 53 1/2 inch skid boards are used the 48 inch side must be placed laterally in the aircraft to fit in the CVR, if this is required then only 7 containers per side can be dropped. Also the parachute must be placed with the pilot parachute facing the outboard or forward side of the aircraft.

(2) C-141 Aircraft, with CVR, can hold 20 single stick and 40 double stick A-22 containers using the 48-inch by 48-inch skid boards.

(3) C-17 Aircraft has a CVR system built into the aircraft floor and must be utilized. It has the capability of 40 CDS bundles 32 on the aircraft floor and 8 on the cargo ramp.

**CONTAINER DELIVERY SYSTEM**

ITEM	SPECIFICATIONS	WEIGHT RANGE
A-7A Strap	Length: 188" Material: Type VII Nylon	30-500 lbs*
A-21 Cargo Bag	Length: 97"x115" Material: Type X Cotton	200-500 lbs
A-22 Cargo Bag	Length: 232"x211" Material: Type VIII Nylon	501-2,200 lbs
Bag Retention Strap	Length: 60" used on G-12D cargo parachute Material: Type X Nylon	8,700 lbs
Suspension Webs	Length: 27 1/2" Material: Type X Nylon	
CDS Release Gate	Length: 20 ft/16 ft(CVR) Material: Type XXVI Nylon	1 ply 625-13,000 2 ply 13,001-25,000 3 ply 25,001-37,248 (C-17) 1 ply 501-18,800 (C-17) 2 ply 18,801-37,600

\* Based on number of straps used for the A-7A container.

\*\* With the CVR, up to 2 CDS release gates will be used per stick.

## CONTAINER DELIVERY SYSTEM PARACHUTES

### Low Velocity

Parachute	Suspended Weight in Pounds	
	Minimum	Maximum
One 68-inch pilot	30	50
Three 68-inch pilot	51	200
One T 10 modified cargo	90	500
One G-14	200	500
*Two G-14	501	1,000
*Three G-14	1,001	1,500
**One G-12 E	501	2,200

### High Velocity

Parachute	Suspended Weight in Pounds	
	Minimum	Maximum
***One 68-inch pilot	75	150
Three 68-inch pilot	151	500
***One 12 Ft	151	500
One 15 Ft	151	500
***One 26 Ft	501	2,200
One 22 Ft	501	2,200

**\*Loads must be dropped one at a time.**

**\*\*On an A-22 load, G-14 Cargo parachute should be used ONLY when a G-12 cargo parachute is not available**

**\*\*\*Primary parachute**

### **STUDENTS NOTES:**

## **CONTAINER DELIVERY SYSTEM AFTER LOADING**

### **RELEASE GATE INFORMATION**

1. All plies of the Type XXVI nylon release gate will be routed through a single guillotine knife.
2. Guillotine knife safety ties will be made IAW TO 1C-XXXX-9.
3. The running ends of the Type XXVI nylon webbing will be taped or tied, not cut. Bundle movement during takeoff may cause slack in the release gate; cutting the excess webbing may hinder slack removal.
4. Two Van Zelm ratchets will be used for each ply of the release gate.
5. A Type III nylon safety tie is required on each Van Zelm ratchet to prevent entanglement in the rail system and container webbing on C-130 aircraft (double Stick loads or CVR loads).
6. Single stick loads may have the pilot parachute static lines attached to the left or the right anchor cable. However, on each individual drop, all bundles will be attached to the same cable, and must be attached to the nearest anchor cable.
7. The deployment parachute must face outboard or forward, never aft.

## **COMBAT RUBBER RAIDING CRAFT**

**The CRRC is an airdrop system that is currently being airdropped more often than in the past. Remaining proficient is imperative to assure mission accomplishment. Although your unit may not have the components for the system, knowledge of the platform rigging is crucial for inspection on and off of the aircraft. CRRC rigging and inspection procedures are specified in TO 13C7-51-21 and TO 1C-XXXX-9.**

The Special Operations Combat Expendable Platform (SOCEP) is utilized for the CRRC. Construction is IAW TO 13C7-51-21, pg. 3-2 fig. 3-1. The SOCEP is comprised of three panels of 3/4" plywood measuring 48"x 75", constructed together with 4" x 4" and 2" x 6" lumber. Sand bags are used to ensure the SOCEP sinks when separated from the CRRC. During the inspection, ensure any holes in the platform are less than two inches, and that sand bags have been included.

The inspection sequence for the load will be the shop final, before loading, and the after loading inspection.

### **Shop Final**

The shop final inspection entails inspecting the load for rigging errors and discrepancies that would be found during the before loading inspection. After the shop final, the inspection forms, DD Form 1748-4, Shippers Declaration, and the CRRC Checklist (Attachment #1) will be initiated and prepared for the Before Loading Inspection.

### **Before Loading Inspection**

1. Information Data Card
2. Deployment parachute

A 15 ft extraction parachute is packed in a T-10 deployment bag and secured to the cargo parachute with one turn single ticket 5 at four corners of the deployment bag. Ensure static line is serviceable and the correct length. The Type IV connector link with clevis is attached to the 9 ft suspension sling assembly which is underneath the deployment bag, S-folded, and attached to bridle assembly of the cargo parachute with a Type IV connector link and clevis cover.

3. Cargo parachute - Insure that the correct number of cargo parachutes are being utilized for the load, attached to the 9 ft sling assembly, and that the parachutes are secured to the load with one turn single 1/4 inch cotton webbing at all four corners. If two parachutes are utilized, 20 ft risers are required for each parachute. If a single parachute is used, a three foot sling will be utilized to attach the parachute to the release assembly.

4. Release - A Hydraulic, 5000 lb or M-1 release is authorized for this load.

5. Suspension slings - Ensure that the suspension slings are routed correctly, secured to the doughnut with one turn double 1/4 cotton webbing, and attached to the release without twists. Ensure lashings are not routed over dead-man.

6. Special Operation Combat Expendable Platform

- a. Correct size
- b. Holes in the platform (no holes larger than two inches in the contact area of the rollers)
- c. Ballast (sand bags)

**After Loading**

1. **Information Data Card:** Information on load data, 1748-4, Shippers Declaration, and CRRC checklist corresponds, and are filled out correctly.

2. **Deployment parachute**

Parachutes secured to the load and connected to release with three foot sling or 20 foot riser extensions if more than one parachute is utilized.

3. **Cargo parachutes**

Ensure the correct number of cargo parachutes are being utilized for the load, attached to the 9 ft sling assembly, and that the parachutes are secured to the load with one turn single 1/4 inch cotton webbing at four corners. If two parachutes are utilized, 20 ft risers are required for each parachute (remove the left bag closing tie on the parachute). (Attachment 1)

4. **Release**

- a. A Hydraulic or M-1 release is authorized for this load.
- b. A Type IV connector link may be used instead of a release, **but the user assumes full liability.**
- c. After use in salt water, the Hydraulic Release must thoroughly flushed with fresh water. Check for corrosion during the inspection. The user accepts full liability for use of the Hydraulic Release.

**Note :** If more than one parachute is used an M-1 or an 5000 lb release is required.

5. **Suspension slings** - Ensure that the suspension slings are routed correctly, secured to the doughnut with one turn double 1/4 cotton webbing, and attached to the release without twists. Lashings are not routed over dead-man.

**6. Special Operation Combat Expendable Platform (SOCEP)**

- a. Correct size (serviceability)
- b. Ballast (sand bags) properly installed and secure